GOVERNOR'S TASK FORCE ON STEM EDUCATION K-12

PLAN FOR DECEMBER 2015-JUNE 30, 2016

STEM FOUNDATIONS

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CHARGE: develop and act upon implementation plan for STEM Task Force "Foundations" recommendations indicated below.

Recommendation 1. Math and Coding: Pathways to STEM Success

> Expand the options for fulfilling four-year math requirements for all New Hampshire students. Expand from the traditional math calculus track to include options with data and statistical analysis courses and linear algebra suited for a wide variety of STEM-related careers. In addition, coding courses (i.e. logic and programming skills) are important because they teach critical thinking skills and are in high demand by New Hampshire industry. Currently 23 states have already adopted rigorous computer science courses to fulfill basic math or science requirements.

Recommendation 2. Next Generation Science Standards: Hands-on Learning

> New Hampshire's Board of Education and local school districts should adopt the Next Generation Science Standards (NGSS). NGSS integrates 21st learning skills such as real world, problem-based learning, and teaches science, engineering and technology while integrating with K-12 Mathematics and English language arts requirements. This recommendation is central to successful implementation of several others in this report

GOALS

> By June 2016:
>
> Obtain stakeholder input and develop high-level recommendations of the key math concepts necessary for inclusion in the two non-calculus tracks recommended by the Task Force in high school mathematics, specifically: (1) data and statistical analysis track; and (2) linear algebra track. Where possible, develop list of examples of specific courses that would address these key concepts for each pathway.
>
> Develop recommendation on high-level content of coding course such that it incorporates logical and mathematical reasoning sufficiently to be suitable for fulfilling a high school mathematics course requirement.
>
> Develop list of New Hampshire high schools teaching coding and a contact person for each course.
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> Assess feasibility of incorporating coding elsewhere in the high school curriculum.
>
> Identify any necessary endorsement or certification for teaching of coding in New Hampshire.

In conjunction with other Task Force Working Groups, explore feasibility of micro-credentialing and other approaches to expand certification or credential to teach coding at the high school level in New Hampshire, and as necessary, provide recommendation on how certification to teach coding can be developed.

Research and report on approaches taken by individual schools in New Hampshire and by other states to incorporate coding, either as specific course(s) or across the curriculum, at the elementary, middle, and high school levels.

Research and report on approaches taken by individual schools in New Hampshire and by other states to incorporate coding concepts in pre-K education.

New Science Standards: the Department of Education is taking the lead on developing New Hampshire science standards that incorporate many of the key elements of NGSS. The Working Group role will be as follows:

(a) develop message for stakeholders on the benefits of new science standards that encourage hands-on open-ended learning and higher order skills of problem solving and critical thinking

(b) assess progress of this effort in light of the original TF recommendation of NGSS adoption and offer comment at the end of June 2016.

Longer Term (by June 2017)

As per the Task Force report, work with the legislature to explore feasibility of codifying different mathematics pathways at the high school level

DELIVERABLES by June 2016

A report outlining progress towards meeting the above goals will be delivered.

NEXT STEPS

Review recommendations with full Task Force, December 10, 2015.

Assign working group lead for each item listed under “Goals” by end of December 2015

Develop initial recommendations on high-level math pathway content and coding course content with preliminary stakeholder input by end of February 2016

Complete process of gathering stakeholder input on content related questions by end of April 2016

Draft report outlining progress, actions, next steps by end of May 2016

Final report including implementation actions and plan for remaining items by June 2016